

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	"2000113418".pn.	EPO; JPO; DERWENT	OR	OFF	2006/07/27 08:35
L2	3	("5159513" or "5583752" or "6313973").pn.	US-PGPUB; USPAT	OR	OFF	2006/07/27 10:20
L3	3	("5159513" or "5583725" or "6313973").pn.	US-PGPUB; USPAT	OR	OFF	2006/07/27 10:47
L4	193155	(spin adj bulb or ((read\$3 or reproduc\$3) near2 (element\$1 or device\$1)) or mr or DOMR or mre or magneto adj2 (resistiv\$3 or resistance\$1) or magnetoresist\$5 or amr or magnetic\$4 adj2 (resistiv\$3 or resistance\$1) or SVMR or TuMR\$1 or CMR\$1 or GMR\$1 or spin adj2 valve\$1 or svmr\$1 or tjmr\$1 or tmj\$1 or tmr\$1 or mram\$1 or magnetic adj2 (memories or memory) or magnetic adj random adj access adj memor\$3 or DSV or TJM or macro adj magnetoresist\$5 or macromagnetoresist\$5 or piggyback or ((composite or combination or merged) adj4 head\$1)) or g11b005/39.ipc. or g11b005/33.ipc. or g11b005/127.ipc.	EPO; JPO; DERWENT	OR	OFF	2006/07/27 10:47
L5	1035964	ruthenium or Ru or ferrimagnetic\$5 or ferri adj2 magnetic\$5 or antiparallel or anti adj parallel or ((antiferromagnetic or AFM or anti adj ferromagnetic\$5 or exchange) adj2 coupling\$1) or APC or AAF or SyAF or SAF or synthetic\$4 adj2 (antiferro or antiferromagnet\$5 or anti adj ferromagnet\$5 or coupling) or artificial adj2 (antiferro or anti adj ferromagnet\$5 or antiferromagnet\$5) or MSSV or SSV or AP1 or AP2 or APC1 or APC2 or AFC or ((reference or keeper) near2 layer\$1)	EPO; JPO; DERWENT	OR	OFF	2006/07/27 13:31
L6	16138	oersted\$1 or Oe or KOe	EPO; JPO; DERWENT	OR	OFF	2006/07/27 12:51
L7	6429	4 and 5	EPO; JPO; DERWENT	OR	OFF	2006/07/27 10:48
L8	43	6 and 7	EPO; JPO; DERWENT	OR	OFF	2006/07/27 11:09

## EAST Search History

L9	124	(differ\$5 or another or dissimilar\$4 or contradistinct\$4 or contradistinctive or contrary or contrast\$4 or disparate or distinct\$4 or diverse or mismatch\$4 or unlike or unequal\$4 or unlike or unsimilar\$4) near3 coercivit\$4	EPO; JPO; DERWENT	OR	OFF	2006/07/27 11:51
L10	10	7 and 9	EPO; JPO; DERWENT	OR	OFF	2006/07/27 11:26
L11	59882	(spin adj bulb or ((read\$3 or reproduc\$3) near2 (element or device\$1)) or mr or DOMR or mre or magneto adj2 (resistiv\$3 or resistance\$1) or magnetoresist\$5 or amr or magnetic\$4 adj2 (resistiv\$3 or resistance\$1) or SVMR or TuMR\$1 or CMR\$1 or GMR\$1 or spin adj2 valve\$1 or svmr\$1 or tjmr\$1 or tmj\$1 or tmr\$1 or mram\$1 or magnetic adj2 memor\$3 or magnetic adj random adj access adj memor\$3 or DSV or TJM or MTJ or macro adj magnetoresist\$5 or macromagnetoresist\$5 or piggyback or ((composite or combination or merged) adj4 head\$1)).ti,ab,clm. or "360/113" or 360/313-327.33.ccls. or 338/32\$2.ccls. or 324/207.21.ccls. or 324/252.ccls. or 365/171.ccls. or 365/173.ccls. or 428/811-811.5.ccls. or 148/108.ccls.	US-PGPUB; USPAT	OR	OFF	2006/07/27 11:49
L12	59882	(spin adj bulb or ((read\$3 or reproduc\$3) near2 (element or device\$1)) or mr or DOMR or mre or magneto adj2 (resistiv\$3 or resistance\$1) or magnetoresist\$5 or amr or magnetic\$4 adj2 (resistiv\$3 or resistance\$1) or SVMR or TuMR\$1 or CMR\$1 or GMR\$1 or spin adj2 valve\$1 or svmr\$1 or tjmr\$1 or tmj\$1 or tmr\$1 or mram\$1 or magnetic adj2 memor\$3 or magnetic adj random adj access adj memor\$3 or DSV or TJM or MTJ or macro adj magnetoresist\$5 or macromagnetoresist\$5 or piggyback or ((composite or combination or merged) adj4 head\$1)).ti,ab,clm. or "360/113" or 360/313-327.33.ccls. or 338/32\$2.ccls. or 324/207.21.ccls. or 324/252.ccls. or 365/171.ccls. or 365/173.ccls. or 428/811-811.5.ccls. or 148/108.ccls.	US-PGPUB; USPAT	OR	OFF	2006/07/27 11:49

## EAST Search History

L13	143489	ruthenium or Ru or ferrimagnetic\$5 or ferri adj2 magnetic\$5 or antiparallel or anti adj parallel or ((antiferromagnetic or AFM or anti adj ferromagnetic\$5 or exchange) adj2 coupling\$1) or APC or AAF or SyAF or SAF or synthetic\$4 adj2 (antiferro or antiferromagnet\$5 or anti adj ferromagnet\$5 or coupling) or artificial adj2 (antiferro or anti adj ferromagnet\$5 or antiferromagnet\$5) or MSSV or SSV or AP1 or AP2 or APC1 or APC2 or AFC or ((reference or keeper) near2 layer\$1)	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:51
L14	7180	12 and 13	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:59
L15	563	(differ\$5 or another or dissimilar\$4 or contradistinct\$4 or contradistinctive or contrary or contrast\$4 or disparate or distinct\$4 or diverse or mismatch\$4 or unlike or unequal\$4 or unlike or unsimilar\$4) near3 coercivit\$4	US-PGPUB; USPAT	OR	ON	2006/07/27 11:51
L16	215	14 and 15	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:02
L31	32351	oersted\$1 or Oe or KOe	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:00
L32	1441	(ruthenium or Ru or ferrimagnetic\$5 or ferri adj2 magnetic\$5 or antiparallel or anti adj parallel or ((antiferromagnetic or AFM or anti adj ferromagnetic\$5 or exchange) adj2 coupling\$1) or APC or AAF or SyAF or SAF or synthetic\$4 adj2 (antiferro or antiferromagnet\$5 or anti adj ferromagnet\$5 or coupling) or artificial adj2 (antiferro or anti adj ferromagnet\$5 or antiferromagnet\$5) or MSSV or SSV or AP1 or AP2 or APC1 or APC2 or AFC or ((reference or keeper) near2 layer\$1)) same (Oe or Oersted\$1 or KOe)	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:54
L33	996	14 and 32	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:53
L34	0	"32360"/\$.ccls.	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:53
L35	47495	"360"/\$.ccls.	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:53
L36	625	33 and 35	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:58

## EAST Search History

L37	281	(ruthenium or Ru or ferrimagnetic\$5 or ferri adj2 magnetic\$5 or antiparallel or anti adj parallel or ((antiferromagnetic or AFM or anti adj ferromagnetic\$5 or exchange) adj2 coupling\$1) or APC or AAF or SyAF or SAF or synthetic\$4 adj2 (antiferro or antiferromagnet\$5 or anti adj ferromagnet\$5 or coupling) or artificial adj2 (antiferro or anti adj ferromagnet\$5 or antiferromagnet\$5) or MSSV or SSV or AP1 or AP2 or APC1 or APC2 or AFC or ((reference or keeper) near2 layer\$1)) same (Oe or Oersted\$1 or KOe) same (differ\$5 or another or dissimilar\$4 or contradistinct\$4 or contradistinctive or contrary or contrast\$4 or disparate or distinct\$4 or diverse or mismatch\$4 or unlike or unequal\$4 or unlike or unsimilar\$4)	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:58
L38	220	14 and 37	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:55
L39	164	@ad<="20030326" and 38	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:31
L40	625	33 and 35	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:58
L41	281	(ruthenium or Ru or ferrimagnetic\$5 or ferri adj2 magnetic\$5 or antiparallel or anti adj parallel or ((antiferromagnetic or AFM or anti adj ferromagnetic\$5 or exchange) adj2 coupling\$1) or APC or AAF or SyAF or SAF or synthetic\$4 adj2 (antiferro or antiferromagnet\$5 or anti adj ferromagnet\$5 or coupling) or artificial adj2 (antiferro or anti adj ferromagnet\$5 or antiferromagnet\$5) or MSSV or SSV or AP1 or AP2 or APC1 or APC2 or AFC or ((reference or keeper) near2 layer\$1)) same (Oe or Oersted\$1 or KOe) same (differ\$5 or another or dissimilar\$4 or contradistinct\$4 or contradistinctive or contrary or contrast\$4 or disparate or distinct\$4 or diverse or mismatch\$4 or unlike or unequal\$4 or unlike or unsimilar\$4)	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:58
L42	220	14 and 41	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:59
L43	164	@ad<="20030326" and 42	US-PGPUB; USPAT	OR	OFF	2006/07/27 12:59

## EAST Search History

L44	164	31 and 43	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:30
L45	517	360/324.11.ccls.	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:30
L46	143489	ruthenium or Ru or ferrimagnetic\$5 or ferri adj2 magnetic\$5 or antiparallel or anti adj parallel or ((antiferromagnetic or AFM or anti adj ferromagnetic\$5 or exchange) adj2 coupling\$1) or APC or AAF or SyAF or SAF or synthetic\$4 adj2 (antiferro or antiferromagnet\$5 or anti adj ferromagnet\$5 or coupling) or artificial adj2 (antiferro or anti adj ferromagnet\$5 or antiferromagnet\$5) or MSSV or SSV or AP1 or AP2 or APC1 or APC2 or AFC or ((reference or keeper) near2 layer\$1)	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:31
L47	106683	@ad<="20030326" and 46	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:31
L48	368	45 and 47	US-PGPUB; USPAT	OR	OFF	2006/07/27 13:31